

ABSTRACT OF THE DISCLOSURE

A solid-state direct replacement relay assembly, and a method for installing and using it to replace the mechanical-style relays in the electrical cabinets of a locomotive. Solid-state relay components are substituted to upgrade locomotive relay systems, and to improve train controls. Normally solid-state relays cannot directly handle standard locomotive voltages without an external power supply that requires modification to the original train design and wiring. The solid-state relay assembly is coupled to a D.C./D.C. converter, which steps 75 volts down to approximately 5-32 volts, and is used to control the solid-state relay assembly. The use of the solid-state relay assembly device requires no modification to the existing electrical wiring system of any new or old locomotive.